



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CÓNFIRMATION NO.
09/540,471	03/31/2000	Yuliya Anatolyevna Akulova	1-4-2	2480

7590 07/25/2002

Lucent Technologies Inc  
Docket Administrator (Room 3C-512)  
600 Mountain Avenue  
PO Box 636  
Murray Hill, NJ 07974-0636

[REDACTED] EXAMINER

NGUYEN, TUAN M

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2828

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application N .</b>	<b>Applicant(s)</b>
	09/540,471	AKULOVA ET AL.
	Examiner Tuan M Nguyen	Art Unit 2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 31 March 2000.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-20 is/are allowed.
- 6) Claim(s) \_\_\_\_\_ is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.



PAUL J.  
PAUL IP  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawing (figs 1-2) is objected for minor informaty. The boxes show in figure 1-2 are not labeled as required by 37 CFR 1.83(a). Applicant is required to submit a drawing correction for approval as require by rule 37 CFR 1.123

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

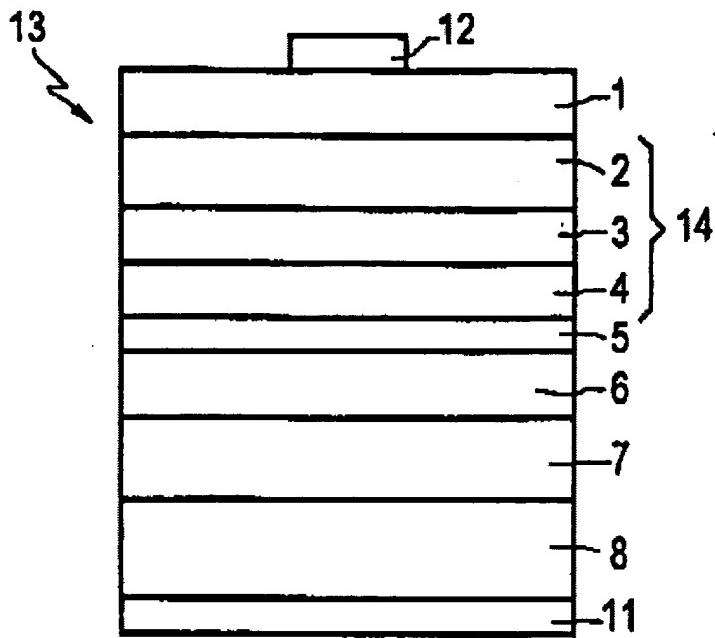
A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

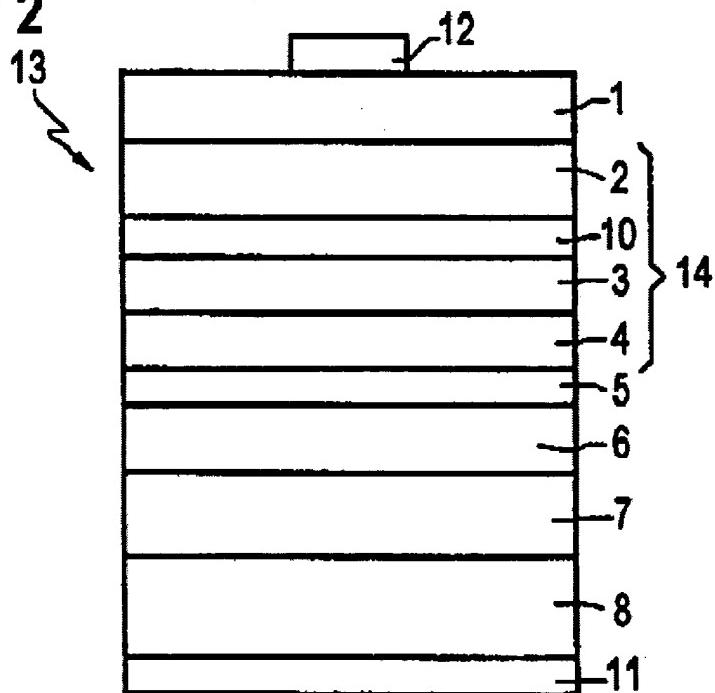
Claims 1- 4 are rejected under 35 U.S.C. 102(a) as being anticipated by Landwehr et al (US patent 6,285,697 B1).

With respect to claim 1, Landwehr et al discloses semiconductor laser component comprises a semiconductor body (13), a substrate (8), a first doped InP outer cover layer (7), a first waveguide (6), a MQW (5), a second waveguide (14) includes a first high doped layer (3), a thin barrier layer (10), a second high doped layer (2) and a second outer cover layer (1), note cols 4-6, see figs 1 and 2.

**FIG 1**



**FIG 2**



With respect to claim 2, Landwehr et al shows the first and second dopant barrier layers (2, 3), note cols. 4-6 see fig 2.

With respect to claim 3, Landwehr et al discussed about the confinement layer and multi quantum well layer (5), note col. 1, see fig 2.

With respect to claim 4, Landwehr et al discussed about the layer is a substrate (8), note cols. 4-6, see fig 3.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 5-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landwehr et al (US patent 6,285,697 B1) in view of Anselm et al (US patent 6,240,114 B1).

With respect to claim 5, Landwehr et al discussed all above except for the first dopant layer is adjacent of current confinement layer and second dopant barrier layer is adjacent of doped layer. Whereas Anselm et al discussed about the MQW comprises an active region in which a multiplicity of barrier each includes a doped barrier layer separated from it s adjacent quantum well layer by another doped layer, note cols. 3-7. For the benefit of used the dopant barrier which is adjacent of doped layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the dopant barrier as taught or suggested by Anselm.

With respect to claim 6, Landwehr et al discussed all above except for the first dopant barrier layer is n-InP and dopant barrier layer is undoped layer. Whereas Anselm et al discussed about the dopant barrier layer and the undoped layer, note cols. 3-6, see fig 1-2c. For the benefit to used the dopant barrier layer and undoped layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the dopant barrier layer and undoped layer as taught or suggested by Anselm.

With respect to claim 8, Landwehr et al discussed about InAlAs, note col.1. However Landwehr fails to discuss the layer is undoped layer. Whereas Anselm et al discussed about the layer is undoped layer, note cols. 3-6, For the benefit to have layer is undoped InAlAs, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the undoped layer as taught or suggested by Anselm.

With respect to claim 9, Landwehr et al discussed about confinement layer, note col.1. However Landwehr fails to discuss about the mesa structure. Whereas Anselm et al discussed about the mesa structure, note cols. 3-6, For the benefit to have mesa structure, it would have

been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the mesa structure as taught or suggested by Anselm.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Landwehr et al (US patent 6,285,697 B1) in view of Anselm et al (US patent 6,240,114 B1) further in view of Stoltz et al (US patent 6,222,865 B1).

With respect to claim 7, Landwehr et al and Anselm et al discussed all above except for the current confinement layer is InP (Fe). Whereas Stoltz discussed about the current confinement layer in InP (Fe), note cols. 5-7, see fig 3. For the benefit to have current confinement layer is InP (Fe), it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the current confinement layer is InP (Fe) as taught or suggested by Stoltz.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Landwehr et al (US patent 6,285,697 B1) in view of Ohlander et al (US patent 6,011,811).

With respect to claim 10, Landwehr et al discussed all above except for the layer is a semi-insulating layer. Whereas Ohlander et al discussed about the layer is a semi-insulating layer, note col. 6. For the benefit of semi-insulating layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the semi-insulating layer as taught or suggested by Ohlander.

8. Claims 11- 15, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landwehr et al (US patent 6,285,697 B1) in view of Seabaugh et al (US patent 5,723,872).

With respect to claim 11, Landwehr et al discussed all above except for the mesa structure having a substrate, Whereas Seabaugh et al discussed about the mesa structure (430) having a substrate, note cols. 3-4, see figs 4a-9. For the benefit of mesa structure having a substrate, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the mesa structure as taught or suggested by Seabaugh.

With respect to claims 12 and 14, Landwehr et al discussed about the confinement layer and dopant barrier. However Landwehr fails to discuss about the mesa structure. Whereas Seabaugh et al discussed about the mesa structure (430), note cols. 3-4, see figs 4a-9. For the benefit of mesa structure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the mesa structure as taught or suggested by Seabaugh.

With respect to claim 13, Landwehr et al discussed all above except for the second dopant comprises a first and second layer. Whereas Seabaugh et al discussed about the second dopant comprises a first and second layer, note cols. 3-6, see figs 4a-11. For the benefit of second dopant comprises a first and second layers, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the multi layers as taught or suggested by Seabaugh.

With respect to claim 15, Landwehr et al discussed about the second layer does not form a pn junction, note cols. 1-2.

With respect to claim 17, Landwehr et al discussed about the layer of InAlAs, note col. 1.

With respect to claim 18, Landwehr et al discussed about the layer of n-InP, note col. 1.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Landwehr et al (US patent 6,285,697 B1) in view of Seabaugh et al (US patent 5,723,872) further in view of Anselm (US patent 6,240,114 B1).

With respect to claim 16, Landwehr et al and Seabaugh et al discussed all above except for the layers is undoped . Whereas Anselm discussed about the undoped layer, note cols. 3-7, see fig 1. For the benefit of undoped layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the undoped layers as taught or suggested by Anselm.

10. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landwehr et al (US patent 6,285,697 B1) in view of Seabaugh et al (US patent 5,723,872) further in view of Stoltz et al (US patent 6,222,865 B1).

With respect to claim 19, Landwehr et al and Seabaugh et al discussed all above except for the current confinement layer is InP (Fe) and one of said at least one layers is p-doped InP. Whereas Stoltz et al discussed about the current confinement layer is InP (Fe) and at least one layer is p-doped InP, note cols. 5-7, see fig 3. For the benefit of current confinement layer is InP (Fe) and at least one layers is p-doped InP, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the current

confinement layer is InP (Fe) and at least one layers is p-doped InP as taught or suggested by Stoltz.

With respect to claim 20, Landwehr et al and Seabaugh et al discussed all above except for the p-doped InP is doped with Zn. Whereas Stoltz discussed about the p-doped and consist of alternatingly materials having a high bandgap and a low bandgap and the diffusing Zn, note abstract and col. 2. For the benefit of p-doped InP is doped with Zn, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Landwehr with the p-doped InP with Zn as taught or suggested by Stoltz.

### **Citation Of The Pertinent References**

11. The prior art made of record and not relied upon us considered pertinent to applicant's disclose.

The patent to O'Brien et al (US patent 6,399,407 B1) discloses method of electrostatic control in semiconductor devices.

The patent to Sugawara et al (US patent 6,221,684 B1) discloses gan based optoelectronic device and method for manufacturing the same.

The patent to Otsuka et al (US patent 6,110,756) discloses method for producing semiconductor laser.

***Communication Information***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-5511 for regular communications and (703) 306-5511 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip  
SPE  
Art unit 2828

TMN  
July 18, 2002